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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,999	06/08/2005	Michael A. V. Ward	6050 P57 US	7085

26486 7590 04/27/2006

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BOSTON, MA 02108

EXAMINER

GIMIE, MAHMOUD

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/511,999

Applicant(s)

WARD, MICHAEL A. V.

Examiner

Mahmoud Gimie

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-19 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward (6,142,130) in view of Nakamura et al (5,101,803).

Ward discloses an inductive ignition system for an internal combustion engine operating at a voltage V_c substantially above the standard 12 volt automotive battery with one or more ignition coils T_i and associated power switches Sw_i , where $i = 1, 2, \dots, n$, with each coil having a primary winding of turns N_P and inductance L_P , and a secondary high voltage winding for producing high voltage sparks of turns N_s and inductance L_s , the

primary and secondary winding defining a turns ratio N_t equal to N_{smp} , the coils being of low inductance with one or more large air gaps within their magnetic core, and producing spark of peak current I_s above 200 ma, the system further including means for providing the higher voltage V_c and controlling the charging and spark discharging of the ignition coils from said voltage V_c in a controlled sequential manner, and further including connection means for connecting the coil T_i secondary high voltage end to a sparking means which substantially reduces EMI following spark breakdown, the system further including electronic control means for receiving signals to fire the sparking means in their proper order.

Ward does not show one or more biasing magnets in said one or more of air gaps in the magnetic core of said low inductance coils to reduce the magnetic core area by approximately 40% for the same coil stored energy, to produce a system that as a whole is more versatile and smaller than prior such systems for the same high coil stored energy.

Nakamura et al disclose one or more biasing magnets (97,98) in said one or more of air gaps in the magnetic core (95,96) of said low inductance coils to reduce the magnetic core area by approximately 40% for the same coil stored energy. The motivation to do so would have been to provide an ignition coil capable of suppressing a reduction in the induced voltage generated by the secondary coil, col. 1 and II. 67-68.

Note: the system of Nakamura et al is capable of producing a more versatile and smaller than prior such systems for the same high coil stored energy.

With regard to claim 2, wherein a micro-controller (MCU) is used for most of the electronic controls that includes generating the charge or dwell time Tch and steering such charging or energizing of the ignition coils in the proper sequence, and firing the spark plugs associated with such coils.

With regard to claim 3, wherein said micro-controller identifies the cylinder to be fired during engine cranking by sensing a voltage from a few turns of each coil by having all the coils fired simultaneously during cranking, and once identified, to then have the MCU shift to sequential firing with the proper firing order to run the engine.

With regard to claims 4-19 and 21-30, applicant has admitted that US patent 6,142,130 discloses all the limitations except for the improvement of using biasing magnets, which have been disclosed by the secondary reference for the above-cited motivation.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show ignition coils.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 571-272-4841. The examiner can normally be reached on Monday-Friday between 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG

A handwritten signature in black ink, appearing to read 'Mahmoud Gimie', with a stylized flourish at the end.

**MAHMOUD GIMIE
PRIMARY EXAMINER**